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Summary of

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Center for
Air Force C^3
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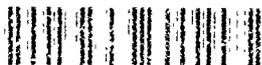
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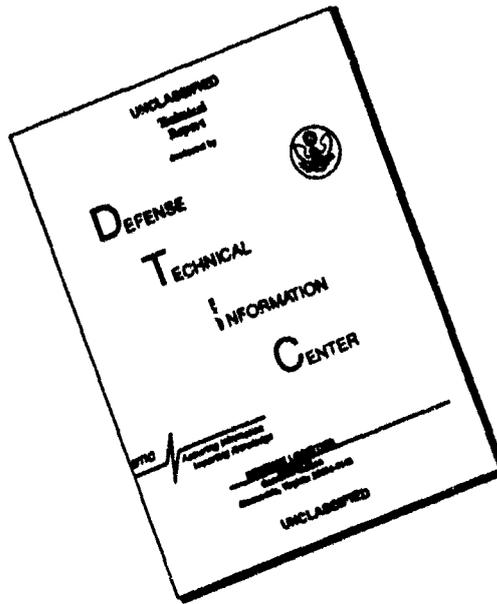
Summary of

Professional

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Center for
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Systems

1990

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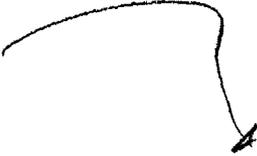
The MITRE Corporation is an independent not-for-profit organization devoted to research, development, engineering, and scientific activities in the public service. The company does not manufacture products or compete with industry.

After a reorganization in 1990, MITRE expanded from three to five operating centers. Personnel from two of the centers are located primarily at our headquarters in Bedford, Massachusetts (with one technical division located in the Washington area). These two centers are the Center for Air Force Command, Control, and Communications (C^3) Systems and the Center for Intelligence and Special Programs. The remaining three operational centers are based in McLean, Virginia: the Washington C^3 Center, the Center for Advanced Aviation System Development, and the Center for Civil Systems.

The principal sponsor for the Center for Air Force C^3 Systems is the Air Force Electronic Systems Division (ESD), which develops ground-based and airborne sensors, radios, computers, software, and displays, and integrates them into command and control systems. We also provide support to other parts of the Air Force, including Rome Laboratory, Air Force Logistics Command, Tactical Air Command, and Strategic Air Command.

This publication is an overview of the professional activities of the Center for Air Force C^3 Systems for the 1990 calendar year. As in past years, our employees have made valuable contributions to the technical and scientific communities through their documents, journal articles, presentations, and participation in group activities. Many of our staff teach in local colleges and universities. Unclassified reports generated within the Center for Air Force C^3 Systems are listed here, as well as participation of our staff in professional and honorary organizations.

We are proud of our employees and their many professional activities, successes, and contributions to the community. We are pleased to recognize them in this *Summary of Professional Activities* publication.
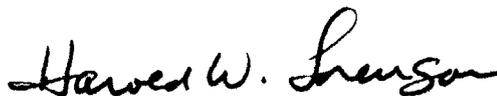
Harold W. Sorenson
Group Vice President and General Manager
Center for Air Force C^3 Systems

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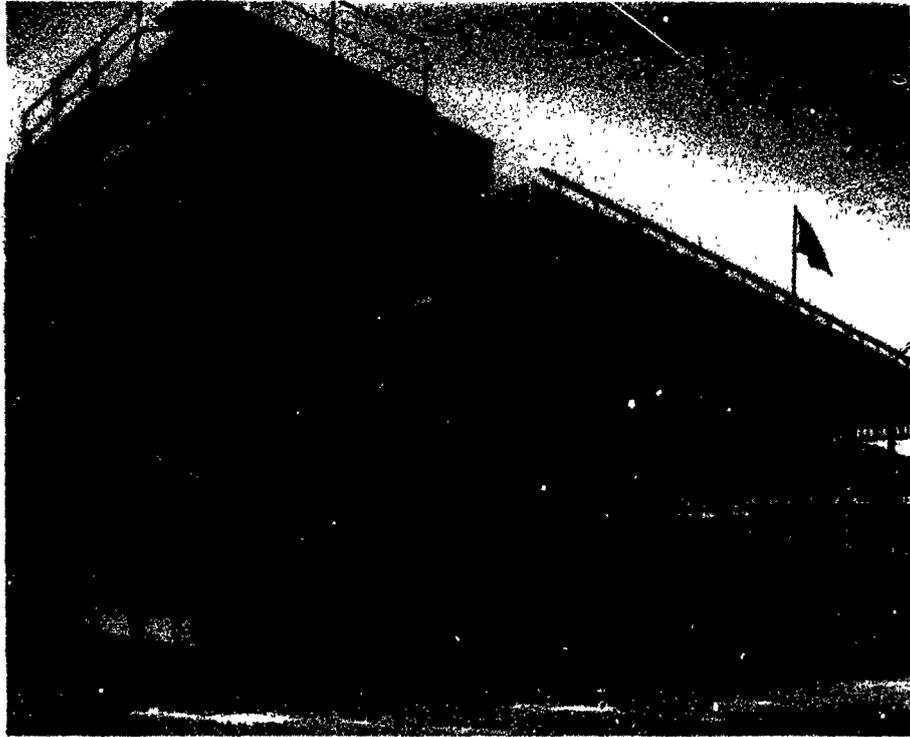
*View of work in progress
on MITRE-Bedford's
M-Building, Spring 1991.*

Table of *Contents*

Graphics-based rapid prototyping tools enable D040's Human Factors Engineering for User System Interface specialty group to explore alternative techniques for presenting data to decision makers.

1990
Summary of
Professional
Activities

**MITRE
Conferences,
Workshops,
Symposia,
and Fairs**

*These events were
sponsored or organized by
MITRE, and included
participants from outside
MITRE.*

10 January
Workshop on High
Frequency Antenna
Element Modeling,
MITRE-Bedford

14–15 March
Air Force Association
(AFA)/ESD Radar
Symposium, MITRE-
Bedford

4 April
Workshop on High
Frequency Antenna
Element Modeling,
MITRE-Bedford

19–21 June
Seventh Annual Command
Center Improvement
Program (CCIP), Com-
mand Center Upgrade
Information Conference,
McLean, Virginia

11 July
Workshop on High
Frequency Antenna
Element Modeling,
MITRE-Bedford

11–12 September
AFCEA's New Horizons
at ESD Symposium,
MITRE-Bedford

17 October
Workshop on High
Frequency Antenna
Element Modeling,
MITRE-Bedford

24 October
Personal Computer Fair,
MITRE-Bedford

1 November
SSC Special Events
Processing — Space
Surveillance Network
Improvement Program
(SSNP), MITRE-Bedford

18–20 November
Technical Exchange
Meeting VIII,
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targets in real time The
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faces with airborne and
ground-based C'i elements
and with attack aircraft
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Galarowicz, Debra A., Slatewala, Moiz A., D06A
"Integration of Multi-Protocol Command and Control Systems," DECUS Europe 1990 Symposium, Cannes, France, 3–7 September 1990.

Games, Richard A., D080
"Sequence Complexity Using Linear and Quadratic Spans," Discrete Mathematics Seminar of the Mathematics Department at the University of Lowell, Lowell, Massachusetts, November 1990.

Garganese, Ugo S., D050
"The Search for a Faster Reliability Verification Approach," Twenty-eighth Annual Reliability Engineering and Management Institute (REMI), University of Arizona, 24 October 1990.

Garvey, Paul R., D090
"A Framework for Estimating the Cost to Build Trusted Computer Systems," Aerospace Corporation Colloquium, Los Angeles, California, June 1990; Society of Cost Estimating and Analysis, Los Angeles, California, June 1990; 24th Annual Department of Defense Cost Analysis Symposium, Leesburg, Virginia, September 1990.

Girard, Mary M., D080, Husbands, Charles R., D050
"Fiber-Optic Internal Calibration Techniques for Large Planar Radar Arrays," DARPA/RADC Symposium Photonics Systems for Antenna Applications, Monterey, California, December 1990.

Goddard, Gary W., D090
"Circuit Card Cost Estimating for Military Electronic Equipment," Twelfth Annual Conference of the International Society of Parametric Analysts (ISPA), San Diego, California, 7–10 May 1990.

Gorzela, Donna B., Schmidt, Brian K., D090
"An Event-Driven Simulation of an HF Network," Operations Research Society of America/The Institute of Management Sciences (ORSA/TIMS) 29th Joint National Meeting, Philadelphia, Pennsylvania, May 1990.

Guertin, Ralph F., Johnson, Raymond C., Wamsley, Deborah A., D090
"Monte Carlo Analysis of Matched-Filter Performance after Narrowband Interference Suppression," 1990 IEEE Military Communications Conference (MILCOM '90), Monterey, California, 30 September–3 October 1990.

Guttrich, Gordon L., Sievers, Werner E., D080
"Experimental Test Bed Briefing," and "AOTH Master Briefing," JCS/JASONS, The Pentagon, Washington, D.C., April 1990; JASONS, San Diego, California, June 1990.

"Forestport Briefing," JASONS, San Diego, California, June 1990.

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**Presentations
at External
Conferences**

**Haberkorn, Ronald A.,
Heim, Peter J.,
McClay, C. Phillip,
Parisi, Samuel J., D090**
"Microwave Optical
Integrated Circuit for
Phased Array Antennas,"
DARPA/RADC Sympo-
sium on Photonics
Systems for Antenna
Applications, Monterey,
California, 13–14 Decem-
ber 1990.

**Halbfinger, Eliezer M.,
Smith, Barry D., D040**
"The Range Scheduling
Aid," Space Operations
Applications and Research
Symposium, Albuquerque,
New Mexico, June 1990.

**Hale, MacFarland,
Wyatt, Richard C., D080**
"A Programmatic Inter-
face to a Relational
Database," Upstate New
York ORACLE's Users'
Group, 1990.

**Handwerker, Jacob,
D090**
"Helixant: A Normal
Mode Helix Antenna
Prediction Program," 1990
IEEE Antenna and
Propagation Society
International Symposium,
Dallas, Texas, 7–11 May
1990.

**Harris, Clifford H.,
Lucente, Michael A.,
Muir, Robert M., D080**
"Memory System Reliabil-
ity Improvement through
Associative Cache
Redundancy," Custom
Integrated Circuits
Conference, Boston,
Massachusetts, May 1990.

Harris, Darwyn P., D040
"Ethics in the Workplace,"
Brown University, January
1990.

Hosker, James J., D050
"An Investigation into the
Gerchberg-Saxton and
Error-Reduction Algo-
rithms," Tufts University
Seminar for Electro-Optics
Technology Center
(EOTC), Medford,
Massachusetts, 26 January
1990.

Jarvis, Ted, D040
"Dynamic Weapon-Target
Assignment and Defense
Against SLBMs," SDIO
Brilliant Pebbles BM/C3
Workshop, Naval Post-
graduate School,
Monterey, California,
19–21 June 1990.

**Katz, Joseph L., G110,
Smith, Barry D., D040**
"Range Scheduling Aid,"
The Third International
Conference on Industrial
and Engineering Applica-
tions of Artificial Intelli-
gence and Expert Systems,
IEA/AIE-90, Charleston,
South Carolina, July 1990.

Kim, Kwang H., D060
"Finite Impulse Response
Estimator"; "Integration of
Electronic Support
Measures and Alpha-Beta
Radar Tracker," Society of
Photo-Optical Instrumen-
tation Engineers (SPIE),
Signal and Data Process-
ing of Small Targets 1990,
Orlando, Florida, 16–18
April 1990.

"Proportional Integral-
Differential Estimator,"
American Control
Conference 1990, San
Diego, California, 23–25
May 1990.

**Kramer, J. David R.,
D080**
"Science and Technology
of Over-the-Horizon
Radar," Harvard/MIT
Seminar on Science,
Technology, and National
Security, Cambridge,
Massachusetts, 21 March
1990.

"Ultra-Wideband Radar,"
OSD/DARPA Ultra-
Wideband Radar Review
Panel, 22 February 1990.

**Kramer, J. David R.,
Reid, Wallace S., D080**
"Track-Before-Detect
Processing for an Airborne
Type Radar," IEEE 1990
International Radar
Conference, Arlington,
Virginia, 7–10 May 1990.

Kramer, J. David R., D080,
Tomljanovich, Nicholas M., D080,
Davis, Curt W. (Lincoln Laboratory),
Poirier, Leon J. (RADC)
"Characteristics of Ultra-Wideband Radars Pertinent to Air Defense Surveillance"; "Impulse Radar Assessment for Air Reference Surveillance," Los Alamos Symposium on Ultra-Wideband Radar, Los Alamos, California, 5–8 March 1990.

Kreindel, Burton, D090
"Troubling Title and Title Insurance Issues," 1990 Boston Bar Association Continuing Legal Education Seminar, Boston, Massachusetts, October 1990.

Krueger, Paul E., D090,
Weitzen Jay A. (University of Lowell)
"DBPSK Signalling Rates that Maximize the Performance of 60 GHz Crosslinks in a Doubly Dispersive Channel," 1990 IEEE Military Communications Conference (MILCOM '90), Monterey, California, 30 September–3 October 1990.

Kurys, Daniel J.,
Couture, Ronald G., D040
"Evaluating Graphical User Interface Tools for Command and Control Applications," National Computer Graphics Association Conference (NCGA '90), Anaheim, California, March 1990.

Logan, James R., D040
"Range Scheduling Aid," Space Network Control Conference on Resource Allocation Concepts and Approaches, Greenbelt, Maryland, 12–13 December 1990.

Low, Johnny,
Wong, Andrew S., D050
"Systematic Approach to Cosite Analysis and Mitigation Techniques," Tactical Communications Conference, Fort Wayne, Indiana, April 24–26, 1990.

Malloy, Mary Ann, D060
"The Application of Object-Oriented Techniques to Processing United States Message Test Formats," The Third International Technology of Object-Oriented Languages and Systems Conference (TOOLS PACIFIC '90), Sydney, Australia, 28–30 November 1990.

Marley, Frederick C., D080
"Impact of VHDL on DOD Acquisition Process," Spring 1990 VHDL User's Group, Boston, Massachusetts, April 1990.

Millar, Robert I., D050
"Principles of Spread Spectrum Communications," IEEE Boston Section, Lecture Series on Spread Spectrum Communications, February 1990.

"Low Probability of Intercept Communications," Harvard/MIT Seminars on Science, Technology, and National Security, April 1990.

Moynihan, Richard A., D090
"Aircraft Force-Sizing for Surveillance Missions," Operations Research Society of America (ORSA) National Meeting, Las Vegas, Nevada, May 1990.

Murphy, Marian J., D040
"Rapid Prototyping on Graphics Workstations: User's Perspectives," Human Factors Society Annual Meeting, Orlando, Florida, October 1990.

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**Newport, Kris T.,
Schroeder, Michael A.,
Whittaker, Gregory M.,
D080**
"Techniques for Evaluating the Nodal Survivability of Large Networks,"
MILCOM '90, Monterey,
California, 30 September–
3 October 1990.

Newport, Kris T., D080
"Incorporating Survivability Considerations Directly into the Network Design Process," IEEE Infocom
'90, San Francisco,
California, 5–7 June 1990.

**Nowacki, Carol L., D080,
Chang, Chorng (Tufts
University)**
"An Uninterpreted,
Behavioral Simulation of a
Cluster Array Processor
for Signal Processing
Applications," 21st
Pittsburgh Conference on
Modeling and Simulation,
May 1990.

"Performance Modeling of
a Cluster Array Processor
Using VHDL," VHDL
User's Group Meeting,
Boston, Massachusetts,
April 1990.

**O'Brien, Arthur E.,
D040,
Hanzls, John E., D080**
"A Climatic Cloud Atlas
for North America," Cloud
Impacts on DOD Operations and Systems, 1989/
90 Conference (CIDOS-
89/90) at Naval Postgraduate School, Monterey,
California, 9–11 January
1990.

**O'Callahan, John P.,
Veron, Harry, D060**
"3D Displays for C³I
Applications," New
England Chapter, Society
for Information Display
(SID), March 1990.

Palo, Edward A., D080
"Spread Spectrum
Technology," Washington,
D.C./Northern Virginia
IEEE Chapter on Microwave Theory and Techniques 1990-1991 Lecture
Series on Spread Spectrum
Communications, 7 March
1990.

**Paradie, Michael J., D060
Nawab, S. Hamid
(Boston University)**
"Two Models for the
Classification of Ringing
Sounds," 1990 IEEE
International Conference
on Acoustics, Speech,
and Signal Processing,
ICASSP-90, Albuquerque,
New Mexico, 3–6 April
1990.

Parker, Lee, D080
"Description and Deficiencies Associated with the
TAC Brawler Computer
Simulation Implementation of a Multimode Pulse
Doppler Airborne Radar
Clutter Performance
Model," TAC Brawler
User's Group Meeting,
Arlington, Virginia, 15–18
October 1990.

**Parmentola, John A.,
D040**
Invited speaker, "Using
Gravity to Monitor Arms
Control Treaties," in the
MIT Seminar Series on
Technology, Defense and
Control, Cambridge,
Massachusetts, 18
November 1990.

Passin, Thomas B., D090
"Component Stress
Characterization," System
Effects Assessment Team
— Winter Meeting, Naval
Post Graduate School,
Monterey, California, 30
January 1990.

"Burnout Testing of
Microwave Diodes";
"Modeling the Response
of Certain Non-Linear
Circuit Elements," Fifth
National Conference on
High Power Microwave
Technology, U.S. Military
Academy, West Point,
New York, 13 June 1990.

Pease, Richard W., D040
"An Overview of Technology for Large Wall Screen Projection Using Lasers as a Light Source," Society of Photo Optical Instrumentation Engineers, Santa Clara, California, 14 February 1990.

Peterson, Carol L., D070
"Reducing Risks in a Dynamic Environment," 1990 International Conference on Information Systems Quality Assurance, Orlando, Florida, 26 April 1990.

Prelle, Myra Jean, G110, Wollrath, Ann M., G110, Brando, Thomas J., G110, Bensley, Edward H., D070
"The Impact of Selected Concurrent Language Constructs on the SAM Runtime System," Workshop on Object-Based Concurrent Systems at OOPSLA/ECOOP '90 Joint Conference, Ottawa, Canada, October 1990.

Providakes, Jason, D080, Farley, Donald (Cornell University), Sahr, John (Cornell University), Swartz, Wesley E. (Cornell University)
"The Altitude and Cause of Type 3 Radar Auroral Echoes," URSI, September 1990.

Rama Rao, Basrur, D090
"An Optimization Technique for the Design of Multi-Frequency Radomes," 1990 IEEE Antenna and Propagation Society International Symposium, Dallas, Texas, 7–11 May 1990.

Rama Rao, Basrur, Debroux, Patrick S., D090
"Wideband HF Monopole Antennas with Tapered Resistivity Loading," 1990 IEEE Military Communications (MILCOM '90), Monterey, California, 30 September–3 October 1990.

Rayson, James K., D060
"Digital Technologies for Terrain Representation," National Computer Graphics Association (NCGA '90), Anaheim, California, 19–22 March 1990.

Reece, Mary Jo, D040, Bodeau, Deborah J., D116
"A Multilevel Mode System for Space Applications: Lessons Learned," Sixth Annual Computer Security Applications Conference, Tucson, Arizona, December 1990.

Reeves, John J., D040, M. Kokar (Northeastern University)
"Qualitative Monitoring of Time-Varying Physical Systems," 29th IEEE Conference on Decision and Control, Honolulu, Hawaii, December 1990.

Ruddy, John M., D090, Carlson, Robert T., D050, Ferguson, Thomas J., D090, Haberkorn, Ronald A., D090, Hulkower, Neal D., D090, Providakes, George F., D090
"Concept for a Cost/Technology-Driven Mobile Satellite Communications (MOBILSATCOM) System," AIAA-90-0864, 13th International Communication Satellite Systems Conference, Los Angeles, California, 11–15 March 1990.

Sandini, Daniel L., D060
"Experience in Modeling a Concurrent Software System Using STATEMATE," 1990 IEEE International Conference on Computer Systems and Software Engineering, Tel-Aviv, Israel, 8–10 May 1990.

Schmidt, Brian K., D090
"Computing Network Availability When Link Failures are Dependent," Operations Research Society of America/The Institute of Management Sciences (ORSA/TIMS) 29th Joint National Meeting, Philadelphia, Pennsylvania, May 1990.

Schoen, Joel M., D080
"Analog Hardware Descriptive Language, IEEE Standards Committee 30 Report," VHDL Users' Group Meeting, Redondo Beach, California, October 1989, and VHDL Analog Design Workshop, Milpitas, California, January 1990.

Schoen, Joel M., D080, Marcotte, Richard A., D070, Nieberg, Maureen J., D070
"System-Level Applications and Research Directions for Model-Based Diagnostic Reasoning," The American Association for Artificial Intelligence 1990 Workshop on Model-Based Reasoning, Boston, Massachusetts, July 1990.

Schroeder, Michael A., Whittaker, Gregory M., D080
"A Knowledge-Based Approach to the Computation of Network Nodal Survivability," MILCOM '90, Monterey, California, 30 September–3 October 1990.

Schultz, Herman P., D070
"Software Acquisition Metrics," Software Improvement Conference — DOD Mission Critical Software Acquisition and Improvement, Washington, D.C., 29–30 November 1990.

Schuster, Marvin A., D080
"Co-Fired Ceramic Multichip Packaging for Military Applications," 1990 Government Microcircuit Applications Conference, Las Vegas, Nevada, 6–8 November 1990.

Siegel, Alan, D040
"Distributed Target Identification," Brilliant Pebbles Element Study In-Process Review, Arlington, Virginia, 26 January 1990.

Sievers, Werner E., D080
"AOTH Master Briefing," and "Experimental Test Bed Briefing," RADC (Briefing to Industry), Griffiss AFB, January 1990; RADC, Griffiss AFB, March 1990; DARPA, Washington, D.C., May 1990; DBA Systems, Inc., Fairfax, Virginia, June 1990.

Smith, Barry D., D040
"A Portable, Graphical Interface to a Scheduling Aid," International Association of Knowledge Engineers' Conference (IAKE-90), San Francisco, California, October 1990.

Smith, Barry D., D040, Katz, Joseph L., G110
"The Range Scheduling Aid," 3rd International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, Charleston, South Carolina, July 1990.

Smith, Derrin, D040
"Technology Initiatives in China," Council on Foreign Relations Annual Conference, New York, New York, May 1990.

Southard, David A., D060
"Terrain Visualization with Superworkstation Graphics," Society for Information Display (SID) 1990 International Symposium, Las Vegas, Nevada, 15–17 May 1990.

Stiefel, Malcolm L., D060
"Hardware and Software Selection Process," IEEE Computer Society, Boston Section, 18 October 1990.

Sussman, Barry, D040
"The Neural Network Solution to the Weapon Assignment Problem," A Tutorial, Summer Computer Simulation Conference (SCSC), Calgary, Alberta, Canada, July 1990.

Tomljanovich, Nicholas M., D080
"Advanced Surveillance Tracking Technology," Paul Revere Chapter 1990 Technical Symposium, 14–15 March 1990.

Troiano, Thomas M., D090
"Recent MITRE Experience Estimating MILSATCOM Hardware Costs with PRICE H," GE PRICE Model User's Group Symposium, Burlington, Massachusetts, 9–11 October 1990.

Utley, Kurt E., D080
"Airborne Surveillance Radar," NATO AEW&C Programme Management Agency (NAPMA), Brunssum, Netherlands, April 1990.

Van Guilder, George G., D050
"JTIDS F-15 Cockpit Demonstration," Association of Old Crows, Ft. Walton Beach, Florida, 12–14 November 1990.

Vitkevich, John A., D090
"Tools for Costing Microelectronics," National Conference of the Institute of Cost Analysis/National Estimating Society, Manhattan Beach, California, 20–22 June 1990.

"Cost Estimating Technique for ASIC Chip Development," GE PRICE Model User's Symposium, Burlington, Massachusetts, 9–11 October 1990.

Waugh, Charles W., D080, Akins, A. J. (RADC), Romano, B. C. (RADC)
"MRC Testing and Results," MILCOM '90, Monterey, California, 30 September–3 October 1990.

Weitzman, Peter S., D090
"Calculation of Transmission Line Parameters and Electric Field Distributions of Coplanar Electrodes on Layered Dielectric Substrates," International Union of Radio Science (URSI) National Radio Science Meeting, Boulder, Colorado, 3–5 January 1990.

"Characterization and Simulation of Proton-Exchanged Integrated Optical Modulators with Various Dielectric Buffer Layers," 1990 Annual Meeting of the Optical Society of America (OSA) OPTCON '90, Boston, Massachusetts, 4–9 November 1990.

Yoon, Chun S., D080, Cedric, George (JPO), Pryk, Zenon (RADC), Cammarere, Mark (TSC), DiDomigio, Richard (TSC), Grazian, Robert (TSC), Stiefvater, Kenneth (TSC)
"Joint STARS Helicopter Classification Mode Definition and Performance Projection," 36th Annual Tri-Service Radar Symposium, Monterey, California, 26–28 June 1990.
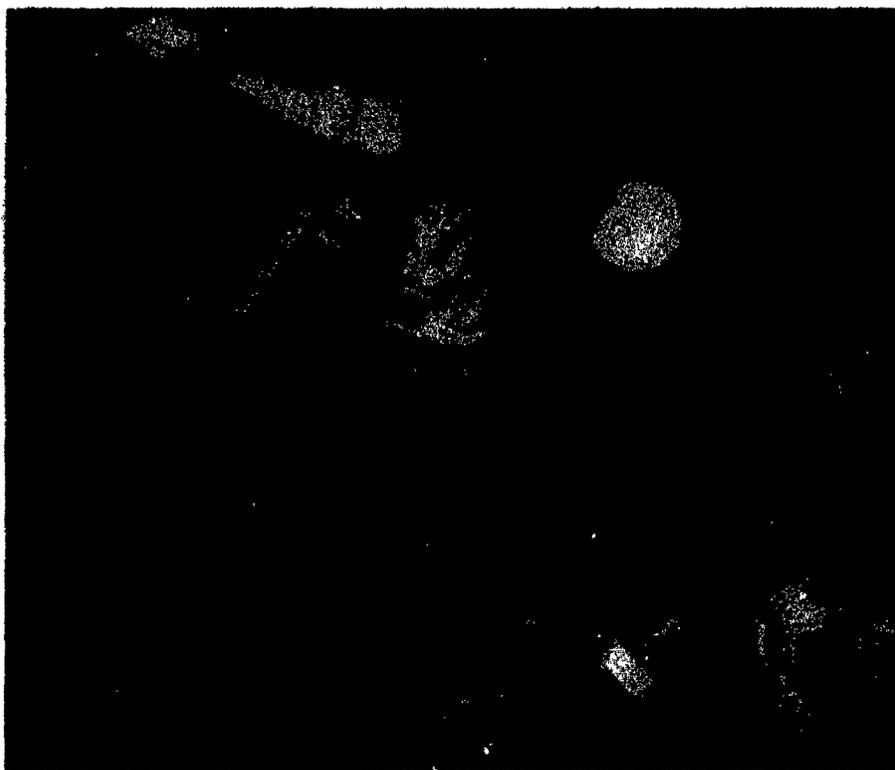
*D070 provides photo-
graphic support to the
Wave Tile Apparatus
Antenna Project.*

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Papers
Published in
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Professional
Journals and
Conference
Proceedings

Blaha, Richard J., D060
"Large-Screen Display Technology Assessment for Military Applications," *Current Overviews in Optical Science and Engineering SPIE Advent Technology Series,* Vol. AT 1, Winter/Spring 1990.

Booth, Michael S., D090, Jacomb-Hood, A. W.
(General Electric, Syracuse, New York),
Houston, D. E. (General Electric, Syracuse, New York),
Alcorn, T. (General Electric, Syracuse, New York)
"A Novel Aperture Isolation Circuit for Use in Phased Array Systems," *IEEE Transactions on Microwave Theory and Techniques,* December 1990.

Chan, Agnes H.,
Games, Richard A., D080
"On the Linear Span of Binary Sequences Obtained from Q-ary M-sequences, Q Odd," *IEEE Transactions on Information Theory,* Vol. 36., No. 3, May 1990, pp. 548–552.

"On the Quadratic Spans of DeBruijn Sequences," *IEEE Transactions on Information Theory,* Vol. 36, No. 4, July 1990, pp. 822–829.

"On the Quadratic Spans of Periodic Sequences," *Advances in Cryptology-CRYPTO'89, Lecture Notes in Computer Science,* Vol. 435, Springer, Berlin-New York, IEEE Intl. Symposium on Information Theory, San Diego, California, January 1990, pp. 82–89.

Clapp, Roger E., D080
"Dynamical Energy Storage in Biomolecules," *Biophys. J. 57, 243a,* February 1990.

"Synchronized Excitations within High T_c Oxide Superconductors," *Bulletin of the American Physical Society 35,* 1990, pp.1363–1364.

"Mechanisms of Entropy Disposal: Their Role in Shaping Prebiological and Biological Organization," *Prebiological Self Organization of Matter,* edited by Cyril Ponnamperuma and Frederick R. Eirich, Hampton, Virginia: A. Deepak Publishing, 1990, pp. 99–114.

Cozzens, John H.,
Sousa, Michael J., D080
"Enhancements to SVD-Based Detection," *Second Intl. Workshop on Singular Value Decomposition (SVD) and Signal Processing,* University of Rhode Island, Kingston, Rhode Island, June 1990, pp. 152–156.

Cozzens, John H., D080,
Cho, Chien-Ching, D090,
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"SDI Network Connectivity Optimization," *Proceedings of the MILCOM 1990 Conference,* Monterey, California, October 1990.

Cozzens, John H., D080,
Krim, Hamid (Northeastern University),
Proakis, John G. (Northeastern University)
"On Spatial Smoothing and Linear Prediction," *Proceedings of Internal Conference on Acoustics, Speech, and Signal Processing (ICASSP) 1990,* Albuquerque, New Mexico, April 1990, pp. 2639–2642.

"Resolution of Closely Spaced Coherent Plane Waves," *Second Intl. Workshop on Singular Value Decomposition (SVD) and Signal Processing,* Kingston, Rhode Island, June 1990, pp. 102–106.

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**Dhar, Sachidulal,
Fante, Ronald L., D080**
"A Model for Target
Detection with Over-the-
Horizon Radar," *IEEE
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space & Electronic
Systems,* Vol. 26, 1990,
pp. 68–83.

**Drake, Marvin D.,
Franks, Glen B.,
Siewert, Ronald O., D050**
"Optical Binary Phase-
Only Correlator System
for Rapid Target Recogni-
tion, Discrimination and
Tracking," SPIE Vol.
1347 Optical Information-
Processing Systems and
Architectures II (1990),
*Proceedings of the
International Society for
Optical Engineering
(SPIE),* San Diego,
California, 9–13 July
1990.

Drake, Marvin D., D050
"Vernier Scaling in
Shortened Optical
Correlators," 1990 Optical
Society of America
Applied Optics, Vol. 29,
No. 29, 10 October 1990,
p. 4333.

**Eastman, Willard L.,
D080**
"Inside Euclid's Algo-
rithm, Coding Theory and
Design Theory," *Institute
for Mathematics and Its
Application (IMA)
Workshop on Codes and
Designs,* Springer-Verlag,
New York, 1990, pp. 113–
127.

Fante, Ronald L., D080
"Effect of Error Correla-
tions and Systematic
Errors on Average Array
Sidelobes," *IEEE Trans-
actions on Antennas &
Propagation,* Vol. 38,
1990, pp. 124–129.

Forger, Andrew F., D070
"Display Rapid Proto-
typing and Simulation
System," *Proceedings
of the 1990 Summer
Computer Simulation
Conference,* July 1990,
pp. 424–429.

**Fridman, Jonathan D.,
D050**
"Optical Fiber and
Atmospheric Laser
Tactical Communication
Systems and Local Area
Networks," *Proceedings
— The Third European
Military Fibre Optic and
Local Area Network
Conference (EMFOC-
LAN),* Munich, Germany,
25–26 June 1990.

Garvey, Paul R., D090
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Approach to System Cost
Uncertainty Analysis" in
the refereed book of
articles, *Cost Estimating
and Analysis-Tools and
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**Hale, MacFarland,
Wyatt, Richard C., D080**
"A Developer-Friendly
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ORACLE," *Database
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"Developing a Friendly
Interface to Oracle,"
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and Design,* Vol. 3, No. 7,
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**Heim, Peter J.,
McClay, C. Phillip, D090**
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Multiplexed Microwave
and Baseband Digital
Optical Fiber Link for
Phased Array Antennas,"
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**Husbands, Charles R.,
D050**
"Evolving Fiber-Optic
LAN Technology,"
*Electro '90 Conference
Record,* 9–11 May 1990,
pp. 714–717.

"RF/Microwave Fiber-
Optic Applications to
Avionics Systems,"
*Proceedings of the
European Military Fiber
Optic Conference (E-
MFOC '90),* pp. 51–46.

Husbands, Charles R.,
Marzot, Giovanni S.,
D050
"Intelligent Optical
Bypass Switch Design for
Survivable Networks,"
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European Military Fiber
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MFOC '90)*, pp. 111–114.

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Matthews, James W.,
D050,
Kaveh Pahlavan
(Worcester Polytechnic
Institute)
"Performance of Adaptive
Matched Filter Receivers
Over Fading Multipath
Channels," *IEEE Transac-
tions on Communications*,
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Meehan, Stephen J.,
O'Neil, Sean D.,
Vaccaro, John J., D080
"A Universal Input and
Output RNS Converter,"
*IEEE Transactions on
Circuits and Systems*,
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Muder, Douglas J., D080
"How Big is an N-Sided
Voronoi Polygon?,"
*London Mathematical
Society*, 1990.

Nowacki, Carol L., D080,
Chang, Chorng (Tufts
University)
"Performance Evaluation
of a Cluster Array
Processor for Signal
Processing Applications,"
*19th Intl. Conference on
Parallel Processing*, Vol.
3, St. Charles, Illinois,
August 1990, pp. 374–
375.

Parmentola, John A.,
D040
"The Gravity Gradiometer
as a Verification Tool,"
*Science and Global
Security*, 1990, Volume 2,
pp. 1–15.

Pavloff, Michael S., D090
"Purification and Chemi-
cal Characterization of
Peptide G1, an Inverte-
brate Neuropeptide That
Stimulates Cyclic GMP
Metabolism," *Journal of
Neurochemistry*, Vol. 55,
No. 3, 1990.

Perry, Bernard D.,
Rifkin, Robert, D080
"Bandwidth Effects on
Signal Fading for the Mid-
Latitude HF Channel,"
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ence*, Monterey, Califor-
nia, October 1990.

Perry, Bernard D., D090,
Richard, Marc N., D080,
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D080,
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D090
"Performance of an
Experimental Spread
Spectrum High Frequency
Link over Several Paths,"
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Powell, Frederic D., D050
"A Rotated-Coordinate
Gaussian Position Recon-
struction Algorithm for the
Microwave Landing
System," *Journal of the
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Providakes, Jason, D080,
Seyler, Charles (Cornell
University)
"Collisional Electrostatic
Ion Cyclotron Waves as a
Possible Source of
Energetic Heavy Ions in
the Magnetosphere," *J.
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Swartz, Wesley E.
(Cornell University),
Kelley, Michael C.
(Cornell University)
"Radar Observations of
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Associated with Two
Barium Shaped Charge
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"Qualitative Monitoring of Time-Varying Physical Systems." *Proceedings of the 29th IEEE Conference on Decision and Control,* December 1990.

Sousa, Michael J., Zwillinger, Daniel I., D080
"Analytical Determination of the Matrix Pseudo-Inverse," *Macsyma Newsletter,* Vol. VII, No. 3, July 1990, pp. 1–9.

Veron, Harry, D060
"A New Approach for Analyzing the Visual-Resolution Characteristics of Shadow-Mask CRT Monitor Configurations," *Proceedings of the Society for Information Display (SID),* Reprinted from Volume 30, No. 4, 1989, (published in 1990) pp. 281–285.

Wilkinson, Charles K., D040
"Attitude Motion of a Nonattitude-Control Cylindrical Satellite," *AIAA Journal of Guidance, Control, and Dynamics,* Volume 13, Number 3, May–June 1990.

Books

Patents

**Canty, William J., D060,
Monahan, John H.,
Former Vice President,
MITRE,
Shay, John W., D010**
*MITRE and the AWACS, A
Systems Engineering
Perspective*, (compendium
of articles), MITRE 1990.

Barr, Paul C., D080
"Three-Level Distributed
Control for Networking
I/O Devices," Patent No.
4,905,219, 27 February
1990.

**Masterman, Hugh C.,
D063,
Johnson, Clifford
(Compugraphic Inc.),
Silverstein, Melvin
(Nortech Engineering)**
*How to Select a CRT
Monitor*, Beta Review
Press, Millwood, Virginia,
1990.
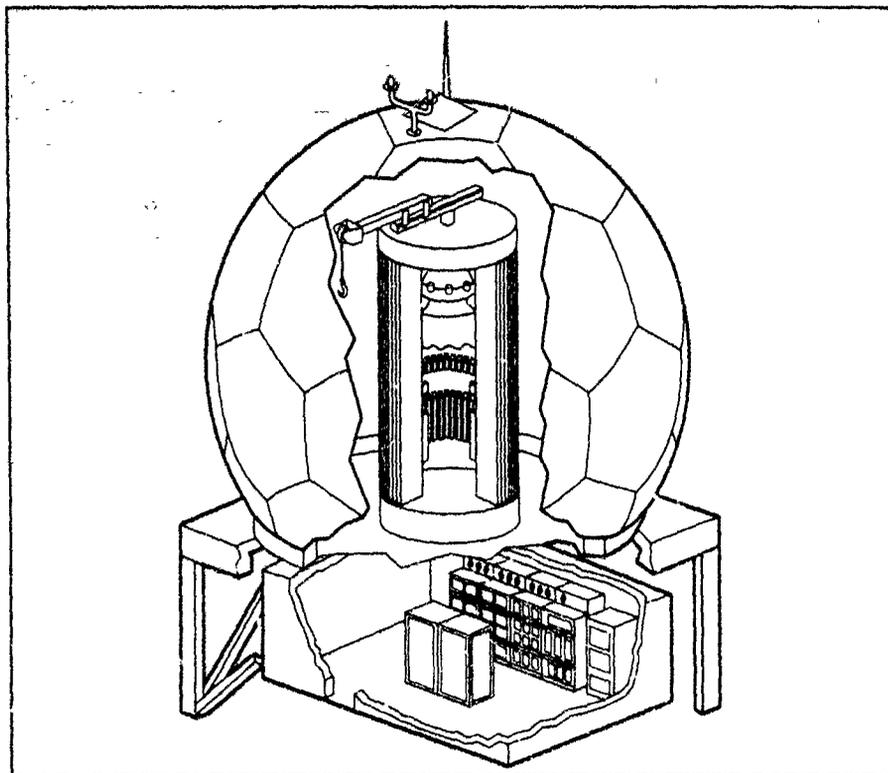
Division D080 is the
system engineer for new
Air Force radar systems
that provide warning
of attacks by ballistic
missiles or air-breathing
vehicles upon the North
American continent. This
role permits the division to
apply its broad expertise
in systems, sensors, and
signal processing to
these programs. For the
North Warning system,
the modern unattended
short range radar and
communications equip-
ment illustrated above
have virtually no moving
parts and promise to
improve system reliability
by a factor of four.

1990
Summary of
Professional
Activities

External
Professional
Roles

This category includes MITRE staff who played a special role (beyond that of "member") in external professional organizations.

Barck, Peter E., D080
Member of IEEE Design Automation Technical Committee, VHSIC Hardware Description Language (VHDL) Analysis and Standardization Group; Member of the IEEE Design Automation Technical Committee, Working Group on VHDL, Modeling and Coding in VHDL; Member of the IEEE Design Automation Technical Committee, Working Group on System-Level Modeling; Steering Committee Member for the VHDL Users' Group.

Bello, Phillip A., D090
Reviewer for *IEEE Transactions on Communication Theory*; Member of Communications Theory Committee (IEEE Communications Society).

Betz, John W., D080
Referee for *IEEE Transactions on Aerospace and Electronic Systems.*

Blanco, Mario A., D090
Reviewer for *IEEE Transactions on Communications, IEEE Transactions on Information Theory*, and *IEEE Transactions on Circuits and Systems.*

Bowden, Samuel J., D040
Senior Member, Institute of Industrial Engineers (IIE), Accreditation Visitor for Programs in Industrial Engineering; Alternate Member, Engineering Accreditation Commission (EAC); Accreditation Board for Engineering and Technology (ABET); Session Chairman: "The National Testbed," 1990 Summer Computer Simulation Conference, The Society for Computer Simulation International, Calgary, Alberta, Canada, 16–18 July 1990.

Brayer, Kenneth, D040
Editor of the IEEE Transactions on Communications for Fading, Dispersive and Multipath Channels, Peer Reviewer for university research proposals submitted to the National Science Foundation.

Breen, Paul T., D060
Co-Chairman, Project Requirements and Applications, Society of Photo-Optical Instrumentation Engineers (SPIE) Symposium, Santa Clara, California, 11–16 February 1990; Co-Chairman, Aerospace and Military Graphics, National Computer Graphics Association (NCGA '90), Anaheim, California, 19–22 March 1990; Chairman, Interactive Aspects of Workstations, and

Seminar Co-Chairman, 1990 Tutorial Committee, Society for Information Display (SID) 1990 International Symposium, Las Vegas, Nevada, 14–18 May 1990; Vice-Chairman, New England Chapter, Society for Information Display (SID); Member, American National Standards Institute (ANSI) Standards Committee, Large-Screen Projector Measurement Standard; Chairman, Workstation Committee, Member, Technical Program Committee, Society for Information Display (SID).

Bridgham, Mary B., D040
Board of Directors of Rocky Mountain Chapter, Armed Forces Communications and Electronics Association (AFCEA), 1988–1990, Vice President-Membership (Industry) 1990–1992.

Brooks, Alan W., D070
Treasurer, Boston Area IEEE & Computer Society.

Campbell, Susan E., D040
Panel Member and Presenter of LUIS Strengths and Weaknesses, "Rapid Prototyping on Graphic Workstations: Users' Perspective," Human Factors Society Annual Meeting, Long Beach, California, October 1990.

*1990
Summary of
Professional
Activities*

**External
Professional
Roles**

Carhoun, Dean O., D080
Reviewer for *IEEE Transactions on Aerospace and Electronic Systems.*

Carlson, Robert T., D050
Chairman, Optical Communications Working Group Strategic Defense Initiative.

Cosentino, Ronald J., D080
Referee for *IEEE Transactions on Computers.*

Cronson, Harry M., D090
Member of Technical Program Committee for IEEE MTT-S International Microwave Symposium; Member of Steering Committee Automatic Radio Frequency Techniques Group (ARFTG liaison) for IEEE MTT-S International Microwave Symposium; Member of IEEE Admission and Advancement Committee; Reviewer of *IEEE Transactions on Instrumentation and Measurement* and *Transactions on Microwave Theory and Techniques.*

Cudlitz, Stephen, D060
MITRE Contact for MIT/ Industrial Liaison Program; MITRE Representative to IPC (Institute for Interconnecting and Packaging Electronic Circuits); Member of Ad Hoc Committee of IEEE/ CHMT Society and Solid State Device Society (Components, Hybrids, and Manufacturing Technology Society); Northeastern University National Council Director.

Davis, Terry L., D090
MITRE-Bedford Corporate Senior Representative for the Society of Women Engineers.

Deniston, Dale R., D040
C² Plans Engineer, United States Army Space Command (Reserve).

DeRosa, Joseph K., D060
Member of Board of Directors, Armed Forces Communications and Electronics Association (AFCEA); Member of the Industrial Advisory Board, Northeastern University Center for Electromagnetics Research (CER).

DiFranza, Michele J., D050
Member of the Boston Section Executive Committee for the American Society for Quality Control (ASQC) as Chairperson for Professional Development.

Dresp, M. Robert, D090
Technical Editor and Reviewer of *IEEE Communications Magazine.*

Dyer, John C., D090
MITRE Representative to the Technical Committee on Economics, American Institute of Aeronautics and Astronautics (AIAA).

Eachus, Robert I., D070
Member of U.S. TAG to ISO-IEC/JTC1/SC22/ WG9 (Ada), the International Standards Organization Working Group for the Ada Programming Language; Member of the Ada Rapporteurs Group; Member of the Uniformity Rapporteurs Group.

Eastman, Willard L., D080
Referee for *IEEE Transactions on Circuits and Systems.*

Eaves, Reuben E., D090
Member of Communications Theory Committee (IEEE Communications Society); Member of Satellite and Space Communications Committee (IEEE Communications Society).

Emery, David E., D070
Technical Editor of IEEE Standards Committee P1003.5 (Ada Binding to POSIX): Chairman, ACM Special Interest Group on Ada (SIGAda) Associated Standards Working Group; Principal Member and Delegate to Soederfors Ada 9X Workshop, SIGAda 9X Working Group; SIGAda National Lecturer; Member of ISO-IEC/JTC1/SC22/WG9 Ada Uniformity Rapporteur Group and Information Systems Rapporteur Group. "An Overview of the POSIX/Ada Binding" (Session Chair and Presenter), ACM SIGAda Summer Meeting, Los Angeles, California, August 1990.

Enright, Charles S., D090
Invited Author of "Some Reflections on PERT and Project Management," *PM NETwork — The Professional Magazine of the Project Management Institute*, May 1990.

Fante, Ronald L., D080
Member of IEEE Fellows Selection Committee; Member of Awards Committee of the IEEE Antennas and Propagation Society.

Ferguson, Thomas J., D090
Chair and Organizer of "Survivable Communications," 1990 IEEE Military Communications Conference (MILCOM '90) Monterey, California, 30 September–3 October 1990.

Fridman, Jonathan D., D050
Chairman and Organizer of The Third European Military Fiber Optic and Local Area Network Conference (EMFOC-LAN), 25–26 June 1990, Munich, Germany.

Galin, Melvyn P., D070
Conference Administrator for the National Conference on the Advancement of Research (NCAR); Advisor to the Executive Committee of the Second International Symposium on Integrated Network Management sponsored by the International Federation for Information Processing (IFIP); Member of the Commonwealth of Massachusetts Energy Advisory Board; Executive Secretary of the Governor's Advisory Committee on Information Technology, Commonwealth of Massachusetts; Deputy MITRE Representative on the Board of Regent's Task Force on Administrative Organization and Management of the Massachusetts Public Higher Education System; Deputy MITRE Representative to the Massachusetts Business Roundtable (MBR) and member of the MBR Education Task Force; MITRE Representative on the Advisory Group to the New England Project of the MIT Energy Laboratory; Member of the Military Affairs Council of the North Suburban Chamber of Commerce; President and Member of the Board of Directors of the Institute for Educational Services.

1990
Summary of
Professional
Activities

External
Professional
Roles

Games, Richard A., D080
Referee for *IEEE Transactions on Aerospace and Electronic Systems, IEEE Transactions on Information Theory, Journal of Cryptography, Journal of Combinatorial Mathematics and Computing.*

Garvey, Paul R., D090
Elected to the International Board of Directors, International Society of Parametric Analysts (ISPA), May 1990; MITRE-Bedford Alternate Delegate to the Space Systems Cost Analysis Group (SSCAG); Chaired cost risk analysis technical session, Society of Cost Estimating and Analysis (SCEA) Conference, June 1990; Referee for *The Journal of Parametrics.*

Georgilas, Christine J., D070
Vice President — New England Software AG Users Group.

Gera, Livio J., D070
Officer of Federal Information Processing Council of New England.

Gibson, Diane G., D040
Secretary, Rocky Mountain Chapter of AFCEA.

Goodwin, Nancy C., D040
Chair, National Program Committee for Human Factors Society 1990 Annual Meeting.

Grimaldi, Lawrence A., D040
Chairperson of the Programs Committee for the 1990 AFCEA (Armed Forces Communications and Electronics Association) Space Symposium, Air Force Academy.

Harris, Darwyn P., D040
Panelist on "Minorities in Technical Careers," Brown University, March 1990.

Hazle, Marlene, D070
Vice Chairperson of Requirements Working Group, Ada Programming Support Environment (APSE) Evaluation and Validation Team.

Helme, Marcia P., D090
Reviewer for *Networks.*

Housman, Edward M., D070
Appointed Special Interest Group Cabinet Representative for ASIS SIG/CR.

Hulkower, Neal D., D090
MITRE-Bedford Delegate to the Space Systems Cost Analysis Group (SSCAG) and Chair of its data subgroup; Honors and Awards Chair and Council Member of the New England Section of the American Institute of Aeronautics and Astronautics.

Husbands, Charles R., D050
Chairman of Electro '90, Session 39, Boston, Massachusetts, 9–11 May 1990.

Kalish, Candace E., D070
Member of AIAA Technical Committee.

Kirkland, Michael R., D040
Reserve Deputy Sheriff, Douglas County, Colorado; Program Chairman, War on Drugs portion of 1990 AFCEA Space Symposium.

Kozma, Adam, D080
Member of Radar Systems Panel, IEEE Aerospace and Electronic Systems Society; Reviewer for *IEEE Transactions on Aerospace and Electronic Systems* and *IEEE Transactions on Antennas and Propagation.*

Kreindel, Burton, D090
Technology Task Force — Chief Justice's Commission on the Future of the Courts; Boston Bar Association — Residential Conveyancing Committee and Title and Title Insurance Committee.

Krupp, Peter C., D070
Member of Ada Run-Time Environment Working Group (ARTEWG), sponsored by ACM/SIGAda and AJPO.

Kuhnert, Bruce R., D050
Chairman of IEEE Communications Society (COMSOC) System Engineering Committee. June '88–June '90.

Kurys, Daniel J., D040
"Rapid Prototyping on Graphics Workstations: User's Perspective of Tools," Panel Session Discussion, Human Factors Society 1990 Annual Meeting (HFS '90), Orlando, Florida, 15 August 1990; Member of IEEE Standards Committee P1201, "Graphical User Interface Application Programming Interfaces and Driveability," Seattle, Washington, October 1990.

Lagace, Robert L., D080
Chairman of Boston Chapter of IEEE Society on Social Implications of Technology.

Luke, Daniel W., D080
Referee for *IEEE Transactions on Aerospace Electronic Systems.*

Masterman, Hugh C., D060
Member of the Technical Program Committee, Society for Information Display (SID) 1990 International Symposium, Las Vegas, Nevada, 14–18 May 1990.

Mauro, Charles V., D090
Honors and Awards Chair of International Society of Parametric Analysts (ISPA); Chaired chapter development.

Metzger, Louis S., D090
Member of MILCOM Conference Board of the IEEE Communications Society; Member of Air Force Studies Board Committee on Tactical Communications.

Mosier, Jane, D070
Liaison, Human Factors Society to the CHI '90 Conference on Human Factors in Computing Systems.

Muder, Douglas J., D080
Referee for *Discrete and Computational Geometry.*

Newport, Kris T., D080
Chairman/Organizer of "Multimedia Communication Networks II" session at MILCOM '90, Monterey, California, 30 September–3 October 1990.

Nowacki, Carol L., D080
Reviewer for *IEEE Transactions on Circuits and Systems;* Reviewer for the 1990 International Conference on Parallel Processing.

O'Neil, Sean D., D080
Referee for *IEEE Transactions on Aerospace and Electronic Systems.*

Owens, Martin F., D070
Member of ISO/IEC STC 1/SC7/WG3; Author and Editor of International Standard SEI-Member of Questionnaire Advisory Board; Member of Defense Software Development Standards Advisory Board and Author of sections of DOD-STD-2167A Guide Book.

Parmentola, John A., D040
Accepted the position of Adjunct Fellow of the Center for Science and International Affairs at the John F. Kennedy School of Government.

Pierstorff, Buckley C., D080
Session Chairman of "Radar Simulation Techniques," 1990 Summer Computer Simulation Conference, Calgary, Canada, July 1990; Member of the Board of Directors, Society for Computer Simulation; Treasurer of Eastern Simulation Council of Society for Computer Simulation; Chairman of Radar and Communications Group, Summer Computer Simulation Conference; Session Chair, "Communication Simulation Techniques" and "Communication Network Simulation," 1990 Summer Computer Simulation Conference, July 1990.

External Professional Roles

Pomponi, Silvester J., D060
Member of the C³I Technical Committee of American Institute of Aeronautics and Astronautics (AIAA); Panel Chairman: American Institute of Aeronautics and Astronautics (AIAA) Workshop on Quantitative Assessment of C³I Systems, May 1990.

Powell, Frederic D., D050
Invited Speaker, University of Vermont Seminar on Applied Mathematics, "Chaotic Behavior of Newton-Raphson Position Reconstruction Algorithms in Unconventional Geometries of the Microwave Landing System."

Pullen, Karen W., D090
Associate Editor of *Journal of Cost Analysis*; Referee of *Computers and Industrial Engineering*; Chaired "Uncertainty Cost Analysis," Operations Research Society of America/The Institute of Management Sciences (ORSA/TIMS) Joint National Meeting, Philadelphia, Pennsylvania, 30 October 1990.

Rama Rao, Basrur, D090
Member of URSI Commission A on Electromagnetic Metrology; Chair and Organizer of MITRE Antenna Workshops, two workshops on various antenna-related subjects.

Roberts, John E., D090
Member of the Advisory Panel of the Voice System Users Association associated with *Speech Technology* magazine.

Rushanan, Joseph J., D080
Chairperson, Boston Section of IEEE, Information Theory Chapter.

Sawyer, John J., D080
State-of-the-Art Instructor, Introduction of SPICE Circuit Analysis, Northeastern University, April–June 1990.

Schoen, Joel M., D080
Chairman of IEEE Standards Coordinating Committee 30 Analog Hardware Descriptive Languages; Steering Committee of VHDL Users' Group; Program Co-Chairman of VHDL Users' Group Meeting; Steering Committee and Program Committee of Analog Design Workshops; Paper Referee for 28th Design Automation Conference; Program Chair, 1993 Summer Computer Simulation Conference.

Schultz, Herman P., D070
Member of Steering Committee for Software Engineering Institute's (SEI's) Software Measurement Initiative; Member of the SEI Software Acquisition Metrics Working Group, Carnegie-Mellon University, Pittsburgh, Pennsylvania.

Schuster, Marvin A., D080
MITRE Industrial Liaison Committee Member, Northeastern University Center for Electromagnetics Research; MITRE Corporate Representative to JEDEC (Joint Electron Devices Engineering Council), Solid State Products Engineering Council.

Siegel, Alan, D040
Participant in SDI Tracking Panels, 3 May 1990 in Los Angeles, California, 7–9 August 1990 in Washington, D.C., 27–29 November 1990 in Mountain View, California.

Smith, Barry D., D040
"Mission Planning and Scheduling," Session Chair, Space Operations, Applications, and Research Conference (SOAR), Albuquerque, New Mexico, June 1990.

Smith, Derrin R., D040
Consultant, Denver Center for Teaching International Relations.

Sousa, Michael J., D080
Referee for *IEEE Transactions on Signal Processing*.

Stiefel, Malcolm L., D060
Founder and Chairperson, Computer Systems Committee on Standards, American Institute of Aeronautics and Astronautics (AIAA); Member Emeritus of Technical Committee on Computer Systems, American Institute of Aeronautics and Astronautics (AIAA); Contributing Editor for S. Klein Newsletter on Computer Graphics; Contributing Editor for *Computer Graphics Review* Magazine.

Sullivan, Edward M., D050
Member of Board of Directors and Technical Program Committee, International Electronics Packaging Society (IEPS); Session Co-Chair of "High Speed Packaging and Modeling," 10th Annual IEPS Conference, Marlborough, Massachusetts, September 1990.

Sussman, Steven M., D090
Technical Reviewer for IEEE Communications Society; Member of Technical Committee on Communications System Engineering (IEEE Communications Society); Session Organizer of IEEE International Conference on Communications.

Topiwala, Pankaj, D080
Reviewer for *Mathematical Review;* Referee for *IEEE Transactions on Aerospace and Electronic Systems* and *IEEE Transactions on Circuits and Systems*.

Townes, Stephen A., D080
Industrial Liaison for the IEEE Central New England Council Third Biennial Acoustics, Speech, and Signal Processing Miniconference.

Trasko, Darrell S., D050
Member of American Institute for Aeronautics and Astronautics Technical Committee for Digital Avionics; Member of Selection Committee for Best Technical Paper, 9th Digital Avionics System Conference.

Utley, Kurt E., D080
Member of Northeastern University Industrial Advisory Board.

Vaccaro, John J., D080
Referee for Idaho State Board of Education Research Grant Program.

Vitkevich, John A., Jr., D090
Chaired the Hardware Cost Estimating Track at the National Conference of the Institute of Cost Analysis/National Estimating Society, June 1990.

1990
Summary of
Professional
Activities

External
Professional
Roles

Weiner, Melvin M., D080
Reviewer for *IEEE Transactions on Aerospace and Electronics Systems*.

Werth, Janet L., D090
Secretary of the Boston Chapter of the Antennas and Propagation Society of the IEEE.

White, Brian E., D050
Session Chairman, "Cosite Mitigation Techniques for Multi-Radio Platforms/ Locations," Tactical Communications Conference, Fort Wayne, Indiana, April 24–26 1990.

Wickwire, Kenneth H., D090
Reviewer for *Mathematical Reviews* and *Zentralblatt fuer Mathematik*; Referee for *Journal of the Operational Research Society* (England).

Williams, Cindy L., D040
Military Operations Research Society (MORS); Co-Chair of Working Group on Military Applications of Space, MORS Symposium, 22 May 1990. Operations Research Society of America/The Institute of Management Science; Chair of Mission Planning Session at Joint National Meeting, 7–9 May 1990.

Williams, Ronald T., D080
Referee for *IEEE Transactions on Acoustics, Speech, and Signal Processing* and *IEEE Transactions on Aerospace and Electronic Systems*.

Wilson, John A., D090
Technical Reviewer for IEEE Computer Society.

Wolfinger, Barbara E., D090
Referee for the *Journal of Parametrics*, a publication of the International Society of Parametric Analysts (ISPA).

Wood, Robert H., D06A
Vice President for Programs, Kaiserslautern Area Armed Forces Communications and Electronics Association (AFCEA) Chapter, Ramstein Air Base, Germany, July 1990–June 1991.

Worsman, David W., D070
Chairman, Data on the PBX Special Interest Group AT&T Definity/85 Users Group.

Barr, Paul C., D080
Adjunct Faculty, Professor of Electrical and Computer Engineering, Graduate School, Northeastern University.

Beamer, Raymond A., D040
Associate Professor of Mathematics, Colorado Technical College, Colorado Springs, Colorado.

Blanco, Mario A., D090
Adjunct Associate Professor, Graduate Courses, Electrical Engineering, Worcester Polytechnic Institute; Lecturer, Graduate School of Engineering, Northeastern University.

Broderick, John C., D070
Instructor, Computer Information System Department Course: "Foundations of Programming," (Pascal), Bentley College.

Cabana, Kevin A., D060
Mathematics Lecturer, Clark University, Worcester, Massachusetts.

Comparetto, Gary M., D040
"Military Satellite Communications: A Comprehensive Approach to System Design and Evaluation," George Washington University.

Davis, Willis L., D050
Lecturer — Statistics, Department of Statistics, Harvard University.

DiFranza, Michele J., D050
Lecturer — Quality and Reliability Engineering and Member of the Quality Program Committee, North Shore Community College, Beverly, Massachusetts; Lecturer — Quality and Reliability Engineering, Boston Section of the American Society for Quality Control.

Edwards, Jerry, D040
Assistant Professor of Mathematics, Chapman College, Colorado Springs, Colorado.

Elgass, Stephen C., D040
Adjunct Professor, Computer Science Department, Regis College, Colorado Springs, Colorado.

Fridman, Jonathan D., D050
Adjunct Faculty, University of Lowell.

Goldberg, Aaron, D080
Adjunct Assistant Professor, Boston University, College of Engineering.

Gregorio, Donna D., D040
"The C++ Programming Language," Northeastern University.

Grimaldi, Lawrence A., D040
Adjunct Professor, Space Systems Management Course, Webster University, Colorado Springs, Colorado.

Hall, W. Dale, D090
Lecturer, Mathematics, School of Engineering Technology, Northeastern University.

Hansen, Stanley W., D040
Assistant Professor, Colorado Technical College, Colorado Springs, Colorado.

Johnston, Shaida S., D040
Adjunct Professor of Mathematics, Pikes Peak Community College, Colorado Springs, Colorado.

Keough, Gerald E., D070
Associate Professor, Department of Mathematics, Boston College.

Kirkland, Michael R., D040
Colorado Law Enforcement Academy Instructor, Colorado Springs, Colorado.

Kozma, Adam, D080
Co-Chairman of Synthetic Aperture Technology and Applications (an intensive course), College of Engineering, University of Michigan.

Teaching Appointments

Krenzin, Michael D., D040
Part-Time Instructor at Pikes Peak Community College, Colorado Springs, Colorado.

Kruger, Suzette N., D040
Adjunct Professor, Computer Science, Regis College, Colorado Springs, Colorado.

Lamensdorf, David, D080
Adjunct Professor of Electrical Engineering, Northeastern University (industry advisor to Ph.D. candidate).

Logan, James R., D040
Adjunct Professor, Computer Science Department, Regis College, Colorado Springs, Colorado.

Makhlouf, Mahmoud A., D070
Taught graduate course "Operating Systems Design and Implementation," Boston University.

Marcotte, Alfred G., D080
Senior Lecturer, Mathematics Department, University College, Northeastern University.

McGee, Michael A., D040
"Introduction to Computer Information Systems, MIS151," January–May 1990, Creighton University, Omaha, Nebraska.

McQueen, Stanley F., D070
Adjunct Associate Professor of Computer Science, Colorado Technical College, Colorado Springs, Colorado.

Oliver, Vernon E., D050
Lecturer — Elements of Thermodynamics II, and Problems in Mechanical Engineering Technology, Department of Mechanical Engineering Technology, University of Lowell.

Pavloff, Michael S., D090
Faculty, Department of Mathematics, Harvard University Extension.

Permenter, Lawrence F., D060
Adjunct Faculty, Mathematics, Tidewater Community College, Virginia Beach, Virginia.

Price, Charles H., Jr., D090
Senior Lecturer and Course Consultant, School of Engineering Technology, Northeastern University.

Rushanan, Joseph J., D080
Adjunct Assistant Professor, Bentley College.

Sanyal, Probal K., D080
Adjunct Assistant Professor, Syracuse University.

Sawyer, Jerry A., D090
Member of AIAA Survivability Technical Committee; Member of the Standards and Lessons Learned Subcommittee.

Schoen, Joel M., D080
Adjunct Faculty, Northeastern University.

Slattery, Norma J., D090
"Fundamentals of Algebra," Continuing Education Division, University of Lowell; "Graduate Record Exam (GRE) Math Review," and "Graduate Management Aptitude Test (GMAT) Math Review," Community Education Division, University of Lowell.

Smith, Derrin R., D040
Adjunct Professor, Center for Management Development, Graduate School of Business, University of Denver, Colorado.

Suresh Babu, B. N., D080
Adjunct Faculty, Department of Electrical Engineering, University of Lowell.

Swarz, Robert S., D050
Adjunct Professor, Department of Electrical Engineering, Worcester Polytechnic Institute.

Teng, Chojan S., D080
Adjunct Faculty, Department of Electrical Engineering, University of Lowell.

Walker, Karen D., D040
Instructor, Pikes Peak Community College and Colorado Technical College, Colorado Springs, Colorado.

Waterworth, John J., D070
Division of Continuing Education, New Hampshire College.

Wilson, John A., D090
Adjunct Faculty, Computer Information Systems, New Hampshire College.
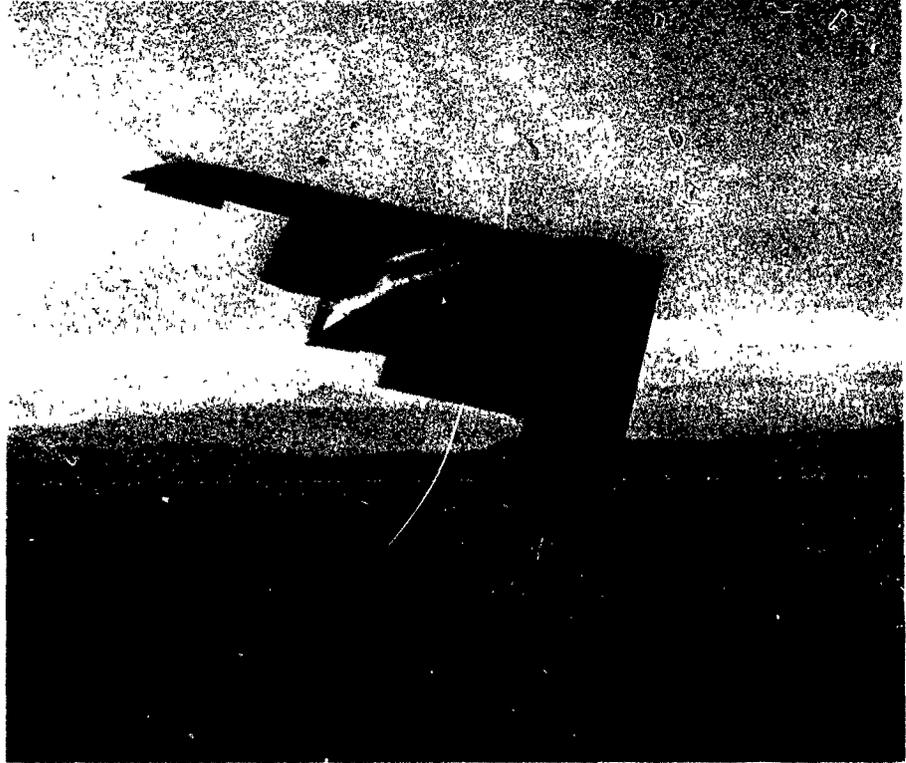
System engineering of communications sub-systems, such as the advanced low frequency/ very low frequency receiver for the B-2 bomber, is one of the ways in which D090 supports the strategic assets of the Air Force.

Phillip A. Bello, D090
Institute of Electrical and
Electronics Engineers
Fellow

Kenneth Brayer, D040
Institute of Electrical and
Electronics Engineers
Fellow

Roger A. K. Burton, D060
British Interplanetary
Society
Fellow

Royal Aeronautical
Society
Associate Fellow

Harry M. Cronson, D090
Institute of Electrical and
Electronics Engineers
Fellow

Reuben E. Eaves, D090
American Institute of
Aeronautics and
Astronautics
Associate Fellow

Ronald L. Fante, D080
Institute of Electrical and
Electronics Engineers
Fellow

Optical Society of
America
Fellow

Electromagnetics
Academy
Fellow

MITRE Corporation
Fellow

George Gamota, D011
American Physical Society
Fellow

American Association for
the Advancement of
Science
Fellow

Ukrainian American
Engineers Association
Fellow

Nancy C. Goodwin, D040
Human Factors Society
Fellow

Edwin J. Green, D070
Institute of Electrical and
Electronics Engineers
Associate Fellow

Aditya K. Kamal, D080
Institute of Electrical and
Electronics Engineers
Fellow

Optical Society of
America
Fellow

Carl F. Kurth, D080
Institute of Electrical and
Electronics Engineers
Fellow

Walter C. Lee, D050
American Association for
the Advancement of
Science
Associate Fellow

Milton D. Rubin, D080
American Association for
Advancement of Science
Fellow

Richard J. Sylvester, D070
MITRE Corporation
Fellow

Williams, Cindy L., D040
Adjunct Research Fellow,
Center for Science and
International Affairs, John
F. Kennedy School of
Government, Harvard
University, Cambridge,
Massachusetts.

1990
Summary of
Professional
Activities

**Honors
and Awards**

MITRE annually selects a small number of programs for special recognition; we granted program awards to about 150 Bedford personnel in 1990, many of whom are members of the Center for Air Force C³ Systems. *Program Accomplishment Awards* were given for participation in the Sentinel Bright I program. *Program Achievement Awards* were given for participation in the Joint Tactical Information Distribution System (JTIDS), Milstar Radome Engineering, and the North Warning System.

Bajgot, Douglas A., D090
Northeastern University Technology Award (first in graduating class) for Associate's degree in Engineering Technology.

Cronson, Harry M., D090
Selected for inclusion in *Who's Who in America.*

Eastman, Willard L., D080
NASA Tech Briefs award for contributions to a deepspace Reed-Solomon decoder.

Galin, Melvyn P., D070
Certificate of Commendation from Governor Michael S. Dukakis for work on the Governor's Advisory Committee on Information Technology.

Grimaldi, Lawrence A., D040
Received the Meritorious Service Award from AFCEA for his involvement in the 1989 Space Symposium held at the Air Force Academy.

Helme, Marcia P., D090
GTE Warner Award for Creative Technical Achievement and Innovation, 10 May 1990.

Housman, Edward M., D070
Received American Society for Information Science (ASIS) SIG-of-the-Year Award for participation as Officer of the Special Interest Group on Classification Research (SIG/CR).

Hulkower, Neal D., D090
Main belt asteroid, 4285 Hulkower, named after Neal D. Hulkower by the International Astronomical Union in appreciation for his work at the Jet Propulsion Laboratory.

Vargas, Arsenio, D090
Featured in League of United Latin American Citizens (LULAC) National Educational Service Centers, Inc.

Vawter, Michael D., D050
Meritorious Service Medal, U.S. Air Force, Air National Guard.

Weiner, Melvin M., D080
Member of Electromagnetics Academy (five-year term). Selected for inclusion in *Who's Who in Electromagnetics* (Electromagnetics Academy).

1990
Summary of
Professional
Activities

Professional
Societies

Our people belong to many professional societies, as shown in the list that begins on the following page. At the right is a list of professional societies that represent the greatest membership within the Center for Air Force C³ Systems.

Institute of Electrical and Electronics Engineers	632
Association for Computing Machinery	173
Armed Forces Communications and Electronics Association	64
Boston Computer Society	64
American Physical Society	35
American Institute of Aeronautics and Astronautics	32
Air Force Association	28
American Association for Artificial Intelligence	28
American Mathematical Society	21
Association of Old Crows	21
American Radio Relay League	20
American Association for the Advancement of Science	18
Digital Equipment Corporation User Society	18
Apple Programmers and Developers Association	17
MITRE-Bedford Amateur Radio Club	16
Mathematical Association of America	14
Society for Information Display	13
MITRE Technical Women's Group	12
Operations Research Society of America	12
Society for Computer Simulation	12
International Test and Evaluation Association	11
National Estimating Society	10
Society of Photo-Optical Instrumentation Engineers	10

1990
Summary of
Professional
Activities

**Professional
Societies**

Acoustical Society of America

Ada Jovial Users Group

Air Commando Association

Air Force Association

Air Traffic Controller's Association

Aircraft Owners and Pilots Association

American Association for Artificial Intelligence

American Association for the Advancement of Science

American Association for the History of Medicine

American Association of Physics Teachers

American Association of University Professors

American Astronautical Society

American Astronomical Society

American Business Women's Association

American Congress on Surveying and Mapping

American Defense Preparedness Association

American Economic Association

American Geological Society

American Geophysical Union

American Institute of Aeronautics and Astrodynamics

American Institute of Aeronautics and Astronautics

American Institute of Chemical Engineers

American Institute of Physics

American Management Association

American Mathematical Society

American Meteorological Society

American Nuclear Society

American Philosophical Association

American Physical Society

American Psychological Association

American Psychological Society

American Radio Relay League

American Society for Engineering Education

American Society for Metals

American Society for Naval Engineers

American Society for Quality Control

American Society for Solar Energy

American Society for Testing and Materials

American Society for Wind Energy

American Society of Civil Engineers

American Society of Clinical Pathologists

American Society of Mechanical Engineers

American Society of Military Engineers

American Society of Naval Engineers

American Society of Photogrammetry and Remote Sensing

American Statistical Association

Apple Professional Exchange

Apple Programmers and Developers Association

Applied Computational Electromagnetics Society

Armed Forces Communications and Electronics Association

Army Association

Association for Automated Reasoning

Association for Computational Linguistics

Association for Computers and the Humanities

Association for Computing Machinery

 Special Interest Group for Artificial Intelligence

 Special Interest Group on Ada

 Special Interest Group on Automata and Compatibility Theory

 Special Interest Group on Automata and Computation Theory

 Special Interest Group on Computer Aided Design

 Special Interest Group on Computer Architecture

 Special Interest Group on Computer Graphics

Special Interest Group on Computer Human Interaction

Special Interest Group on Computers and the Physically Handicapped

Special Interest Group on Data Communications

Special Interest Group on Graphics

Special Interest Group on Office Information Systems

Special Interest Group on Operating Systems

Special Interest Group on Programming Languages

Special Interest Group on Simulation

Special Interest Group on Software Engineering

Association for Symbolic Logic

Association for Systems Management

Association for Unmanned Vehicle Systems

Association of Former Intelligence Officers

Association of Old Crows

Association of the United States Army

Astronomical Society of the Pacific

Audio Engineering Society

Berkeley Macintosh User's Group

Biophysical Society

Board of Professional Engineers

Boston Bar Association

Boston Computer Society

Central States VHF Society

City and Guilds Institute of London (England)

Cognitive Science Society

Computer Measurement Group

Computer Professionals for Social Responsibility

Cornell Society of Professional Engineers

Corporate Planners Round Table

Digital Equipment Corporation User Society

Electronic Industries Association

European Association for Theoretical Computer Science

Federal Information Processing Council

Federation of American Scientists

Florida Engineering Society

History of Science Society

Human Factors Society

Institute for Interconnecting and Packaging Electronic Circuits

Institute of Econometric Research

Institute of Electrical and Electronic Engineers

   Acoustics, Speech and Signal Processing Society

Aerospace and Electronic Systems Society

Antennas and Propagation Society

Biomedical Society

Circuits and Systems Society

Communications Society

Components, Hybrids and Manufacturing Technology

Computer Society

Control Systems Society

Education Society

Electromagnetic Compatibility Society

Electron Devices Society

Engineering Management Society

Geoscience and Remote Sensing Society

Information Theory Society

Instrumentation and Measurement Society

Lasers and Electro-Optics Society

Lightwave Technology Society

Management Society

Medicine and Biology Society

Microwave Theory and Techniques Group

Nuclear and Plasma Science Society

Nuclear Space and Radiation Effects Society

1990
Summary of
Professional
Activities

**Professional
Societies**

Oceanic Engineering Society

Quantum Electronics and Applications Society

Reliability Society

Signal Processing Society

Social Implications of Technology Society

Software Engineering Society

Solid State Electronic Society

Systems, Man, and Cybernetics Society

Institution of Electrical Engineers (U.K.)

Institution of Electronic and Radio Engineers (U.K.)

Institute of Environmental Sciences

Institute of Industrial Engineers

Institute of Management Sciences

Institute of Navigation

Institution of Electrical Engineers (U.K.)

International Amateur-Professional Photoelectric Photometry

International Association of Knowledge Engineers

International Association of Personnel Women

International Astronomical Union

International Communications Association

International Electronics Packaging Society

International Neural Network Society

International Radio Consultative Committee (CCIR)

International Society for Hybrid Microelectronics

International Society for Mini- and Microcomputers

International Society for Optical Engineering

International Society for the Study of the Origin of Life

International Society for the System Sciences

International Society of Parametric Analysts

International Studies Association

International Test and Evaluation Association

International Union of Radio Science

League for Programming Freedom

Linguistic Society of America

MACAPP Developers Association

Managing Apple Computers in Information Systems

Massachusetts Bar Association

Massachusetts Conveyancers Association

Massachusetts Society of Professional Engineers

Materials Research Society

Mathematical Association of America

Mensa

Meridian User Group

Military Operations Research Society

MITRE-Bedford Amateur Radio Club

MITRE Technical Women's Group

National Association for Female Executives

National Association of Flight Instructors

National Computer Graphics Association

National Estimating Society

National Military Intelligence Association

National Security Industrial Association

National Society of Black Engineers

National Society of Professional Engineers

Navy League

New England Chapter of Health Care Information and Management Systems Society

New England Communications

New Hampshire Society of Professional Engineers

New York Academy of Sciences

Oceanic Engineering Society

Open Software Foundation

Operations Research Society of America

Optical Society of America

Order of Engineers

Planetary Society

Pritsker Users Group

Quality Assurance Institute

Radio Amateur Satellite Corporation

Radio Society of Dhahran, Saudi Arabia

Radio Society of Great Britain

Radio Technical Commission for Aeronautics

Royal Aeronautical Society

Scientific Committee for Investigation of Claims of the Paranormal

Seattle CASE Users Group

Security Affairs Support Association

SES/Workbench User Group

Smithsonian Association

Society for Computer Simulation

Society for Information Display

Society for Information Management

Society for Software Engineering

Society for Space Research, West Germany

Society for the Advancement of Materials and Process Engineering

Society of American Military Engineers

Society of Automotive Engineers

Society of Experimental Mechanics

Society of Exploration Geophysicists

Society of Industrial and Applied Mathematicians

Society of Photo-Optical Instrumentation Engineers

Society of Reliability Engineers

Society of Women Engineers

Software Maintenance Association

Software Psychology Society

Software through Pictures Users Group

Sun Microsystems Users Group

The Cambridge Society (Cambridge University, U.K.)

The Computer Museum

The Electromagnetic Academy, Institute for Electromagnetic Modeling and Applications

The Retired Officers Association

The USENIX Association

Union of Concerned Scientists

United States Air Force Academy Association of Graduates

United States Army Field Artillery Association

United States Defense League

United States Naval Institute

United States Strategic Institute

VHDL Users' Group

Verdex User Group

Voice Systems Users Group

Washington Apple Pi (Macintosh Users' Group)

Yale Sciences and Engineering Association

1990
Summary of
Professional
Activities

**Honorary
Societies**

During 1990 our people were members of many honorary societies, which are listed below. The honorary societies listed at right represent the greatest membership within the Center for Air Force C³ Systems.

Eta Kappa Nu	180
Tau Beta Pi	173
Sigma Xi	75
Phi Beta Kappa	44
Phi Kappa Phi	33
Sigma Pi Sigma	29
Pi Mu Epsilon	25
Sigma Tau	10

Alpha Kappa Mu
Alpha Lambda Delta
Alpha Phi Delta
Alpha Pi Mu
Alpha Pi Nu
Alpha Sigma Nu
Arnold Air Society
Beta Gamma Sigma
Beta Kappa Chi
Chi Epsilon
Epsilon Delta Pi
Epsilon Sigma Pi
Eta Kappa Nu
Franklin Honor Society
  (Roosevelt University)
Gamma Beta Phi
Golden Key National
  Honor Society
Kappa Mu Epsilon
Lambda Sigma Tau
National Engineering
  Society
Omicron Delta Kappa
Phi Beta Kappa
Phi Delta Kappa
Phi Delta Lambda
Phi Eta Sigma
Phi Kappa Nu
Phi Kappa Phi

Phi Omega Epsilon
Phi Tau Phi (Scholastic
  Honor Society of America)
Phi Theta Kappa
Pi Delta Epsilon
Pi Mu Epsilon
Pi Tau Sigma
Psi Chi National Honor
  Society
Sigma Beta Tau
Sigma Chi
Sigma Epsilon Rho
Sigma Epsilon Sigma
Sigma Gamma Tau
Sigma Pi
Sigma Pi Sigma
Sigma Tau
Sigma Xi
Tau Alpha Pi Association
Tau Beta Pi
Tau Epsilon Sigma
Tau Kappa Alpha
Upsilon Pi Epsilon
  Association

We have attempted to
report all pertinent staff
activities for 1990. We
apologize for any inadver-
tent errors or omissions.

For further information
contact:

Equal Opportunity
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Corporation reaffirms its
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ment to equal opportunity
and affirmative action.